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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/323,230	06/01/1999	YASUNORI UETANI	2185-0343P	8929

2292 7590 02/02/2004

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EXAMINER

CHU, JOHN S Y

ART UNIT PAPER NUMBER

1752

DATE MAILED: 02/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/323,230

Applicant(s)

TAKATA ET AL.

Examiner

John S. Chu

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 6-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

This Office action is responsive to the Appeal Brief received November 4, 2003.

Prosecution is reopened in view of a new prior art rejection being made.

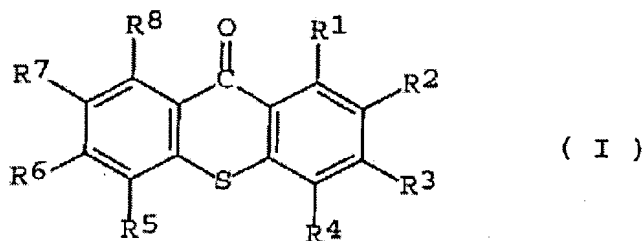
***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over TACHIKAWA et al in view of KHANNA et al, CANIZE et al, RAHMAN et al.

The claimed invention is drawn to an article comprising a substrate comprising a silicon wafer and a positive resist composition comprising a novolac resin; an o-quinonediazide sulfonic acid ester of a compound having a phenolic hydroxyl group; and a thioxanthone compound represented by the following formula (I):



TACHIKAWA ET AL discloses a photosensitive composition comprising a quinonediazide compound and a sensitizer wherein the sensitizers are disclosed in column 3, lines 3-15. Applicants are directed to line 12 for the suggestion of thioxanthone as an additive aromatic ketone. Applicants are further directed to Example for the disclosure of a phenolic resin (novolac) in Example 1.

TACHIKAWA ET AL lacks an explicit example using the claimed and disclosed thioxanthone, however it would have been *prima facie* obvious to one of ordinary skill in the art of photosensitive quinonediazide containing compositions to use any of the listed aromatic ketones with the reasonable expectation of same or similar results as disclosed in TACHIKAWA ET AL for the formation of positive and negative images. TACHIKAWA ET AL further lacks the explicit use of a silicon wafer as a substrate to coat the photosensitive composition, however does disclose suitable substrates in column 3, lines 34-44 which include metal substrates, paper, paper laminates, plastic films and metal or organic thin layers deposited on a plastic or glass support.

TACHIKAWA ET AL, fails to explicitly disclose the presence of a sensitizer as claimed such as thioxanthone, however the use of sensitizers is to expand the spectral range and the activate the acid generators are well known and can easily be added to provide known and expected results.

KHANNA et al, CANIZE et al and RAHMAN et al disclose photoresist compositions comprising quinonediazide and novolac resins which can be coated on silicon wafers or chrome-plated glass as functionally equivalent substrates for semiconductor devices and are analogous based on the desired application, see column 6, lines 11-33 in RAHMAN et al, column 5, lines 38-58 in CANIZE et al and column 7, lines 2-26 in KHANNA et al. Clearly the photosensitive composition comprising a quinonediazide compound, a phenolic resin and a thioxanthone is known in the art and merely coating the composition on a silicon wafer or a chrome-plated glass substrate is obvious to the skilled artisan depending on the desired application.

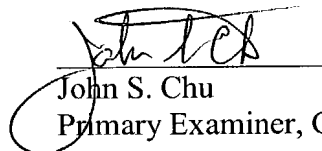
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It would have been *prima facie* obvious to one of ordinary skill in the art of photosensitive composition to first coat the photosensitive compositions of TACHIKAWA et al on a silicon wafer as a substrate for semiconductor manufacturing wherein the silicon wafer and chrome-plated glass are functionally equivalent as taught in the prior art references of KHANNA et al, CANIZE et al, and RAHMAN et al with the reasonable expectation of same or similar results as recited in TACHIKAWA et al for forming patterns of high resolution and excellent edge acuity. It would also been *prima facie* obvious to the skilled artisan to add thioxanthone in place of 1,2-benzanthraquinone of Example to function as a sensitizer to expand the spectral sensitivity of the compositions as well as help activate the acid generators and reasonably expect same or similar results as recited in TACHIKAWA ET AL.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (703) 308-2298. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

The fax phone number for this Group is (703) 305-5433.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

  
John S. Chu  
Primary Examiner, Group 1700

J.Chu  
January 26, 2004